$$\bar{x}_2 = \frac{1}{n_1 + n_2}\left(\sum_{i=1}^{n_1+n_2} x_i\right) \qquad [12]$$

(5) Compute the standard error (S_{x2}) of the measured energy or water consumption of the n_1 and n_2 units in the combined first and second samples as follows:

$$s_{x_2} = \frac{s^1}{\sqrt{n_1 + n_2}} \qquad [13]$$

NOTE: s_1 is the value obtained in Step (c).

(6) For an energy or water consumption standard (ECS), compute the upper control limit (UCL_2) for the mean of the combined first and second samples using the DOE ECS as the desired mean and a one-tailed probability level of 97.5 percent (equivalent to the two-tailed probability level of 95 percent used in Step (f)(1)) as follows:

$$UCL_1 = ECS + ts_{x_1} \qquad [14]$$

where the t-statistic has the value obtained in (f)(1).

(7) For an energy or water consumption standard (ECS), compare the combined sample mean (x_2) to the upper control limit (UCL_2) to determine one of the following:

(i) If the mean of the combined sample (x_2) is greater than the upper control limit (UCL_2) or 105 percent of the ECS whichever is less, *i.e.*, if x_2 > min (UCL_2, 1.05 ECS), the basic model is not compliant and testing is at an end.

(ii) If the mean of the combined sample (x_2) is equal to or less than the upper control limit (UCL_2) or 105 percent of the applicable energy or water performance standard (ECS), whichever is less, *i.e.*, if $x_2 \leq$ min (UCL_2, 1.05 ECS), the basic model is in compliance and testing is at an end.

APPENDIX B TO SUBPART C OF PART 429—SAMPLING PLAN FOR ENFORCEMENT TESTING OF COVERED EQUIPMENT AND CERTAIN LOW-VOLUME COVERED PRODUCTS

The Department will determine compliance as follows:

(a) The first sample size (n_1) must be four or more units, except as provided by § 429.57(e)(1)(ii).

(b) Compute the mean of the measured energy performance (x_1) for all tests as follows:

$$x_1 = \frac{1}{n_1}\left(\sum_{i=1}^{n_1} x_i\right) \qquad [1]$$

where x_i is the measured energy efficiency or consumption from test i, and n_1 is the total number of tests.

(c) Compute the standard deviation (s_1) of the measured energy performance from the n_1 tests as follows:

$$s_1 = \sqrt{\frac{\sum_{i=1}^{n_1} (x_i - x_1)^2}{n_1 - 1}} \quad [2]$$

(d) Compute the standard error (s_{x1}) of the measured energy performance from the n_1 tests as follows:

$$s_{x_1} = \frac{s_1}{\sqrt{n_1}} \quad [3]$$

(e)(1) For an energy efficiency standard (EES), determine the appropriate lower control limit (LCL_1) according to:

$$LCL_1 = EES - ts_{x_1} \quad [4a]$$

or

$$LCL_1 = 0.95EES, \quad [4b]$$

And use whichever is greater. Where EES is the energy efficiency standard and t is a statistic based on a 97.5 percent, one-sided confidence limit and a sample size of n_1.

(2) For an energy consumption standard (ECS), determine the appropriate upper control limit (UCL_1) according to:

$$UCL_1 = ECS + ts_{x_1} \quad [5a]$$

or

$$UCL_1 = 1.05ECS, \quad [5b]$$

And use whichever is less, where ECS is the energy consumption standard and t is a statistic based on a 97.5 percent, one-sided confidence limit and a sample size of n_1.

(f)(1) Compare the sample mean to the control limit.

(i) The basic model is in compliance and testing is at an end if:

(A) For an energy or water efficiency standard, the sample mean is equal to or greater than the lower control limit, or

(B) For an energy or water consumption standard, the sample mean is equal to or less than the upper control limit.

APPENDIX C TO SUBPART C OF PART 429—SAMPLING PLAN FOR ENFORCEMENT TESTING OF DISTRIBUTION TRANSFORMERS

(a) When testing distribution transformers, the number of units in the sample (m_1) shall be in accordance with §429.47(a) and DOE shall perform the following number of tests:

(1) If DOE tests four or more units, it will test each unit once;

(2) If DOE tests two or three units, it will test each unit twice; or

(3) If DOE tests one unit, it will test that unit four times.

(b) DOE shall determine compliance as follows:

(1) Compute the mean (X_1) of the measured energy performance of the n_1 tests in the first sample as follows:

$$X_1 = \frac{1}{n_1}\sum_{i=1}^{n_1} X_i \qquad [1]$$

where X_i is the measured efficiency of test i.

(2) Compute the sample standard deviation (S_1) of the measured efficiency of the n_1 tests in the first sample as follows:

$$S_1 = \sqrt{\sum_{i=1}^{n_1} \frac{(X_i - X_1)^2}{n_1 - 1}} \qquad [2]$$

(3) Compute the standard error ($SE(X_1)$) of the mean efficiency of the first sample as follows:

$$SE(X_1) = \frac{S_1}{\sqrt{n_1}} \qquad [3]$$

(4) Compute the sample size discount ($SSD(m_1)$) as follows:

$$SSD(m_1) = \frac{100}{1 + \left(1 + \frac{0.08}{\sqrt{m_1}}\right)\left(\frac{100}{RE} - 1\right)} \qquad [4]$$

where m_1 is the number of units in the sample, and RE is the applicable DOE efficiency when the test is to determine compliance with the applicable energy conservation standard, or is the labeled efficiency when the test is to determine compliance with the labeled efficiency value.